

CAN DISEASE PROTECT HEALTH?

5

BEING

A REPLY TO MR. ERNEST HART'S PAMPHLET ENTITLED

THE TRUTH ABOUT VACCINATION.

BY

ENOCH ROBINSON, M.R.C.S.



LONDON:

E. W. ALLEN, 11 AVE MARIA LANE.

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CAN DISEASE PROTECT HEALTH?

MR. HART's published lecture, entitled 'The Truth about Vaccination,' imitates, in its numbered paragraph arrangement, Seaton's 'Handbook of Vaccination,' but lacks absolutely the spirit of fairness and thoroughness of research of that standard compilation. Excepting a few recent smallpox statistics, and Mr. Hart's own inferences therefrom, the contents of the pamphlet are, for the most part, based upon the papers prepared by Mr. Simon in 1857, and the evidence given by Mr. Marson in 1871. The brilliant and philosophical Reports by Mr. Simon on Sanitary Science, presented to the Privy Council and Local Government Board during the last ten years, his more recent opinions on vaccination-syphilis, and the modes of metabolic contagia, are entirely ignored.

The *tone* of Mr. Hart's writings towards the opponents of vaccination is an improvement upon the elaborate and amusing sarcasm to be met with in Mr. Simon's papers. Mr. Hart gives a feeble imitation of this form of sarcasm in the words—"One might as well say that vaccination caused chilblains, or lay at the root of the Afghan war."¹ This mild attempt is better, as a matter of taste, than the direct quotation from Mr. Simon in Mr. Hart's 'Report on Animal Vaccination.'² The thoughtful reader of Mr.

¹ Page 20.

² *British Medical Journal*, November 29th, 1879.

Simon's earlier as well as later essays will regret, in the interests of scientific truth, the absence from Mr. Hart's pamphlet of the influence of the latter writings, and will unhesitatingly assert that Mr. Simon's future and well-deserved fame as a pioneer in true sanitary science will not rest upon the papers of 1857.

The *tone* of Mr. Hart's *personal* references to the opponents of vaccination, although not as sweet as it might be, betokens a considerable advance upon that given forth by Mr. Marson in 1871. In his evidence the following questions and answers are to be found :

4174. "I suppose that you are quite aware that there is a strong feeling and a great objection on the part of a number of people against vaccination?"

"Yes, I know there is; but I nearly always find that it is the father who objects, and not the mother, and it makes it very suspicious."

4175. "What do you mean?"

"The father would like the family as small as possible that he has to work for; I am afraid that is at the bottom of it."

Mr. Hart gives the names of the committee who heard these answers; but Mr. Jacob Bright was the only member who openly, in his examination of Dr. Seaton, condemned this cool and infamous suggestion. Mr. Hart's personal references are wanting in this form of brutality, but betray a lamentable absence of the "historical conscience." He says of anti-vaccinators:—"Their chosen champions who argued on this subject in 1871 were two obscure practitioners, a homœopath, a whilom clergyman, a lawyer, and one or two laymen." To condemn opponents because they are not Court physicians or well-paid officials, but obscure as belonging to the mass of the community, is as uncharitable as it is unwise. Mr. Hart has quoted secondhand from Dr. Seaton's 'Handbook' an opinion of Jenner, given by Dr. Baron. If Mr. Hart will *himself* turn to Baron's first volume, page 232, he will find a statement that at the least should teach humility to dogmatists whose opinions need to be enforced by pains and penalties. The passage I am about to quote refers

to smallpox inoculation—the first attempt, vaccination being the second—to protect humanity against smallpox by means of a living element of animal disease. The agent of inoculation was the smallpox disease; the agent of vaccination is the vaccine disease. Dr. Baron writes:—"Justice to the learned body of the clergy of that day requires it to be mentioned that many of them, with the Bishop of Worcester (Dr. Maddox) at their head, maintained publicly the innocency of the new practice; nay, more, they defended its adoption on the score of Christian duty. The opposition of medical men was temperate though ill-founded, save in those who said, and said truly, that by inoculation the smallpox, however milder and safer it might be thus rendered to the individual subject to it, must necessarily be more extensively propagated from its contagious nature, and its fomes kept alive and active for ever." "It was *confidently*, though *mistakenly*, asserted by the advocates for inoculation about this time (1752) that the number of deaths from smallpox in the bills of mortality had diminished by one-fifth since the practice of inoculation had been adopted; this, however, was erroneous, for, in fact, they exceeded those of any former year, amounting to 3538 in 1752." "In 1754 the College of Physicians in London declared their fullest approbation of the practice of inoculation." In 1807 the same College of Physicians wrote:—"However beneficial the inoculation of the smallpox may have been to individuals, it appears to have kept up a constant source of contagion which has been the means of increasing the number of deaths by what is called the natural disease." Dr. Baron goes on to say "that inoculation increased smallpox mortality in the proportion of about 5 to 4. It was becoming evident, therefore, that unless inoculation could be made by compulsion universal, it would be better for the community that it should be abandoned altogether." This history of inoculation, with the smallpox disease as its agent, came to an end when a clause in an Act of Parliament decreed that the person guilty of it "shall be liable to be proceeded against summarily, and upon conviction to be imprisoned for any term not exceeding one month."

I give these quotations as a two-fold warning to Mr. Hart.

(1) Judged by the "historical conscience," which occupies the most creditable position, the great body of the profession who, in 1754, supported inoculation or the obscure and unnamed medical men who opposed it? Self-confident officialism *can* be mistaken.

(2) The professed purpose of Mr. Hart's pamphlet is not to strengthen his own conviction of the absurdity of the movement against vaccination, but to benefit certain Members of Parliament and magistrates who are, he says in his preface, "often at their wits' end" for a concise statement of the merits of vaccination. The degree of success which may attend this kindly effort to sow the beginnings of wit, will be of no importance either to the opponents of vaccination, or to the public generally. The men who are at their wits' end, how to justify an Act of Parliament they have helped to create and enforce, are not likely to be of any account in the discussion of a question of national concern. But this purpose of Mr. Hart's pamphlet whilst possessing the quality of mercy to individuals, illustrates a phase of officialism in which the opinions of the mass of the people are ignored as of no importance so long as the official promoters of Acts of Parliament, the Members of Parliament who create them, the well-paid officials who carry them out, the Justices of the Peace who enforce them by pains and penalties are satisfied with their own ideas and conduct. In a free country the position of this form of officialism is precarious. I venture to suggest to Mr. Hart, that the convictions of vaccination officialism no more represent the national feeling on this question than the "Sovereigns and Statesmen" doctrine expressed the calmly-formed judgment of the electors; and that a change as disastrous and decisive is in store for the official promoters of vaccination. Mr. Hart and his self-confident followers should ponder well, to quote the words of the *Times* of May 3rd, 1880, "The suddenness with which the British public periodically ejects its servants at the moment they have begun to demean themselves as if they held patent offices." When Mr. Hart and

Dr. Carpenter, of Croydon,¹ talk about compulsory re-vaccination, and the taking by force the child from the arms of its parents, in place of the present system of fine and imprisonment, and vaccinating it, they should remember that the people whose sense of freedom would be outraged, will have first to say—Aye, or Nay!

As a guide to the non-professional world, Mr. Hart is not infallible. As editor of the *British Medical Journal*, he wrote as follows, on October 13th, 1877 :—" It is said that by using vaccine derived from the calf, we shall get rid of one of the objections to vaccination as at present performed. Even if this practice be carried out, the objection may still be raised, that we might at the same time inoculate other diseases. Why not syphilis? And certainly why not foot-and-mouth disease—a disease which is said to show itself in man with a vesicular eruption, or even some of the more serious forms of disease (*e.g.* malignant pustule) so fatal amongst cattle." The same editor in the same journal of November 29th, 1879, writes :—" That animal vaccination may be the means of communicating other diseases than that which it is intended to communicate is an exploded bugbear founded on nothing." An editor who acknowledges having guided his readers by opinions formed under the influence of a bugbear, cannot claim the unquestioning faith of those he addresses.

The omission of all reference to the scientific writings of Mr. Simon, the neglecting to notice the great diversity of opinion upon essential points amongst the leaders of the profession at the conference on animal vaccination, deprive the pamphlet of every claim to be a scientific treatise. Whilst the refusal to acknowledge the beneficial influence of sanitary measures, in determining the degree of virulence and propagation of the smallpox disease, demonstrates the extent to which blind partizanship can warp the official mind.

But the essential defects of Mr. Hart's pamphlet are three. He has not appreciated : (1) The important influence of the specific power of the complex structure of the skin (human and bovine)

¹ *British Medical Journal*, December 27th, 1879.

upon the lymph artificially introduced in inoculation (whether smallpox, vaccine, or "re-vaccine") in enfeebling its virulence and ultimately, as in the re-vaccine lymph, destroying its power to produce in the adult the specific vaccine vesicle. (2) The influence of the common septic ferment in these lymphs, as manifested in the areolar inflammation said to be necessary to the "good" vaccine vesicle, before it produces constitutional effects. (3) The enormous influence of sanitary measures in diminishing those influences belonging to crowded populations, which tend to the production and propagation of all contagious diseases.

In the following pages I hope to persuade the impartial reader that there are at the least *two* sides to the vaccination question.

I shall first give a few examples of the diverse opinions upon essential points expressed by well-known believers in vaccination. (2) I shall endeavour to test the comparative merits of the two "creeds"—that of the promoter and that of the opponent of vaccination. (3) I shall take the most prominent sets of statistics, and see if more rational inferences than those suggested by Mr. Hart cannot be drawn from them.

Diversity of opinion amongst the believers in vaccination.—Mr. Hart's reference, in his preface, to the "recognised leaders of the medical profession," might lead the non-professional reader to suppose, that there was absolute unanimity of opinion amongst these men upon all vital points connected with vaccination. The reader's attention is, therefore, directed to the following instances, which might be increased in number if space allowed.

1. As to the efficiency of the present system of vaccination.—Dr. Stevens (of the Local Government Board) who gave himself the following character:—"He had seen more vaccinated children than any man alive, or who had lived," said:—"All his experience led him to the opinion that the arm-to-arm system practised in this country was as nearly perfect as a system could be made, and as efficacious as could be desired."¹ On the other hand, Dr. Cameron, M.P., avers:—"The recurrence, therefore, in

¹ Conference, December, 1879.

the latest period of a mortality almost as high as that experienced prior to the Vaccination Acts shows, that the protective virtues of vaccination are mythical, or that there is something radically wrong in our national system of vaccination."¹

2. As to what vaccination can ultimately accomplish.—Dr. Warlomont said :—"So long as vaccination shall not have annihilated smallpox, it has not done all that it ought or can do." On the other hand, Mr. Ceely said :—"They would not be able to annihilate smallpox, and he defied any one to show that he had claimed such a result. From the experience he had had, no such thing could or ever would happen."³

3. As to the purest source of vaccine lymph.—Mr. Ernest Hart said :—"The term animal vaccination means the inoculation of a young selected animal of the bovine species from an original spontaneous case of cow-pox, *from this others*, and so on in continuous and endless series, as a source of virus to be used for the protection of the human race from smallpox disease."⁴ On the other hand, Professor Ransome, of the Victoria University, Manchester, said :—"May I earnestly express the hope that the renewal of our lymph supply may, if possible, be obtained from genuine cases of cow-pox and not *from calves or heifers inoculated from others*, or *worse still, vaccinated from the human subject*."⁵

4. As to the relation of smallpox to cow-pox.—Professor Simonds, of the Royal Veterinary College, said :—"That after an experience of something like forty years, frequently as he had seen eruptive diseases in the skin of the cow, he had never been able to recognise any of them as variola (smallpox). He was, therefore, inclined to think that the cows which Jenner originally saw, were cows not with generated disease, as it were simply *sui generis*, but that they had become accidentally infected with smallpox matter in consequence of the great prevalence of

¹ *Times*, December, 1879.

² Conference.

³ *Ibid*.

⁴ *British Medical Journal*, Dec., 1879.

⁵ *Ibid*.

smallpox at that time.”¹ On the other hand, Mr. George Fleming, Army Veterinary Inspector, said :—“I will now venture to dispute every one of the arguments brought forward to prove that human variola (smallpox) and cow-pox are due to the same virus, or are the same disease.”²

I, at this point interpose a curious opinion expressed by Mr. Hart in his pamphlet, page 10. He says :—“There is in my mind very little doubt that human smallpox and cow-pox are derived from *one and the same infection*: which is the *ancestor of the other* is a moot point at present into which it would hardly be profitable for me here to enter; but that smallpox and cow-pox are identical was Jenner’s firm belief.”

(1) If A and B are derived from one and the same parent, C can either A or B be the ancestor of the other?

(2) On page 16 Mr. Hart seems to decide the “ancestor” difficulty without any hesitation. “The smallpox of man conveyed to the cow produces cow-pox” [that settles one “point”], “but the cow-pox thus induced, retransferred to man, is as incapable as the natural smallpox itself³ of producing infectious smallpox.” Surely this settles the other. And yet Mr. Hart does not seem quite easy in his mind; and there is a reason for his uneasiness. If by artificial inoculation the same amount, *in area, or number of vesicles* of eruption were produced as in a given case of infectious smallpox, would there not be an equal amount of constitutional disturbance, and an equal amount of effluvial infection?

5. As to the number of “marks” necessary to efficient vaccination.—Dr. Churchill, of Dublin, the author of several standard medical works, said :—“As to the number of vesicles to be raised, different opinions have been held. At the early period *one vesicle* was considered sufficient; then three, four, or six were recommended. Some of the Germans insist on twenty or thirty, as they hold that no reliance can be placed on vaccination unless

¹ Conference.

² *Lancet*, January, 31st, 1880.

³ When artificially inoculated, should be here understood.

some constitutional effect be produced. In this country it is, I believe, the custom generally to make two punctures, nor is it found less effectual than five. For some years I have only made *one*, on account of the severe inflammation which sometimes results from two or more, nor have I any reason to suppose that my object was not as completely attained.”¹

On the other hand, Mr. Ernest Hart, trusting to the observations of an official vaccinator, said:—“The rate of mortality among so-called vaccinated cases in hospital is, as we have seen, in *precise* proportion to the number and quality of the vaccination marks.” (I suppose Mr. Hart means in *inverse* proportion.)

6. As to the character of a true vaccine vesicle from whence lymph may be safely taken.—The Government regulation says that the lymph must be taken “when there is *no perceptible commencement of areola*.”² On the other hand, Dr. Churchill said that one of the characters is “a well-marked areola;” and Mr. Marson, whose observations are quoted by Mr. Hart, as if the quality of infallibility belonged to them, said (4329), in his evidence in answer to the question, “In true cow-pox inoculation, is not erysipelas stated by Dr. Jenner to be a necessary accompaniment of the process?” *Answer*; “He likened it to erysipelas. It is necessary to have the areola, as it is called, round the vaccinated ‘spots,’ else the vaccine disease is not ‘protective.’ Directly it arrives at the stage of areola, it is protective; *short of that a person may have smallpox.*”

Lest it should be objected that these opinions are not necessarily opposed, because the *time* at which lymph should be taken is one thing, and the *ultimate vesicular effect* another, I may point out to the reader, that the last line in Mr. Marson’s answer inseparably connects the two together. If the vesicle gives no evidence of its protective character until the areola is present; and if vesicles can be produced and not have the areola, and, therefore, *not* be protective, then the only condition that can determine that the lymph is suitable is the presence of the areola.

¹ *Diseases of Children*, 1870.

² By areola is meant the *Inflammatory redness* around the vesicle.

It is not mentioned anywhere, that a vaccinator must judge of the efficient character of his lymph by the subsequent appearance of the vesicle *from whence* he has taken it. In practice the vaccinator does not again see the vesicle from whence he takes the lymph.

7. As to the possibility of syphilitic infection from vaccine lymph that has passed through a human being.—Dr. Seaton said :—" And though the great leaders of our profession—Chomel or Rostan, or Bright, or Latham, or *Watson*, or Brodie, or Joseph Henry Green—may have had little or no experience in the mere practice of vaccination, and some of them probably little to do specially with syphilis, their vast and intimate knowledge of the nature of the diseased processes and the laws by which such processes are propagated in the human subject, gives immense weight to the opinion they unreservedly express, that the specific infection of the one disease *cannot convey with it the other*." " The suggestion of its being possible," says Latham, in his own forcible way, " amazes me." " I apprehend that persons entertaining such opinions," says Joseph Henry Green, " can be only those who are ignorant of the circumstances under which diseases are ordinarily propagated."¹ On the other hand, Mr. Jonathan Hutchinson says :—" Amongst the best means by which we may hope to prevent the occurrence of these lamentable accidents in the future I would put, as the foremost, the *diffusion of the knowledge amongst the profession* that such accidents are possible. Until my original papers were published almost the whole British profession was incredulous on this point; and in spite of the publicity which was then given to the facts there still remain, I believe, some who are either uninformed or unconvinced."²

8. As to the danger attending the operation of vaccination in early infancy, Dr. Seaton, in 1875, said :—" Vaccination is as safe an operation in early infancy as at any other period of life."

On the other hand, Mr. Ernest Hart said, in *British Medical*

¹ Seaton's *Handbook*.

² *Clinical Surgery*, vol. i.

Journal, October 13th, 1877, "In respect of the age at which vaccination is performed, it is unfavorable, since it coincides with the time of appearance of specific eruptions, and, moreover, it is performed at a time when mothers too often begin to give the infant other food than breast-milk—a circumstance which favours the development of non-specific eruptions."

One of the most interesting incidents in the vaccination controversy has been the part played by Sir Thomas Watson.

As to the possibility of vaccination transmitting syphilis, his name will be found in the list of "great leaders of our profession," given above by Dr. Seaton in his 'Handbook,' published in 1868. In the June number of the *Nineteenth Century*, 1878, Sir Thomas, having been converted by Mr. Hutchinson, thus expressed himself:—"I can readily sympathise with and even applaud a father who, with the presumed dread or misgiving in his mind, is willing to submit to multiplied judicial penalties rather than expose his child to the risk of an infection so ghastly."

So important was Sir Thomas Watson's opinion thought to be by Mr. Ernest Hart, that the hour at which the Conference on Animal Vaccination¹ met was adapted to suit Sir Thomas's convenience. Sir Thomas addressed the meeting, and the following is a complete report of his speech:

"My feelings upon this subject are very strong, from my being convinced that, by this system of animal vaccination, and by the vaccine lymph being thus *cleansed*, we may drive smallpox entirely out of this country."

In the month of January following (1880) Sir Thomas wrote:—"That the vaccine—or rather the equine—disease owed its virtue and efficacy in vaccination to the fact that it was really smallpox in another form, was an opinion which I had inconsiderately adopted. I have since done what I could to make known my reasons for abandoning that belief, which I fancy is no uncommon belief. A little consideration will suffice to show that the vaccine disease is *sui generis*. In no sense does it owe its origin to small-

¹ 4 p.m.

pox. There is no relation between the two as that of parent and offspring. The true attitude of cow-pox towards smallpox is an attitude of antagonism. Cow-pox is a *preventive cause against*, not an effect of, pre-existing smallpox. All this is equally true of *all disorders* properly called zymotic, including smallpox itself."

Being called upon for his proofs of this opinion, Sir Thomas again and finally wrote, in the same *British Medical Journal*, February 28th, 1880:—"A careful perusal of it (Mr. Ceely's paper) has convinced me that I *have been in error* respecting the mutual relations of smallpox and cow-pox."

Mr. Ernest Hart never acted more inconsiderately than when he induced Sir Thomas Watson, at so advanced an age, and at the close of a brilliant professional career, to take sides at the present time in the vaccination controversy. There seems to be this difference between inoculation and vaccination in the modes they respectively deal with the reputations of their promoters. Inoculation ruined reputations in the mass. Vaccination is more refined in its cruelty; it crushes each reputation separately.

THE TWO CREEDS.

Mr. Hart has applied the term "creed" to the opinions of his opponents. I will follow his example, and speak of the two creeds—that of the promoter and that of the opponent of vaccination. To compare them so as to ascertain their respective merits, it is necessary to start at a common point from whence the two schools of thought begin to diverge. The two methods—inoculation of smallpox and vaccination—are *successive* phases in the promotion of the same "protective" principle. Vaccination succeeded and superseded inoculation as being not a better protector, but a safer method. Sir William Gull expressed the modern idea of the relation of vaccination as a protective in-

fluence to that of inoculation:—"Vaccination is as protective against smallpox as smallpox itself."¹ This was Jenner's doctrine. It takes us back to the time when smallpox inoculation was adopted in anticipation of an attack of the natural disease. To compare the two creeds in the most elementary way, I will suppose the following conditions in two successive smallpox epidemics, A and B:

100 persons are attacked in A, of whom

80 die, and

20 survive.

40 persons are attacked in B, of whom

20 are the 20 who previously survived, and

20 are attacked with smallpox for the first time.

The first 20 again survive. But of the second 20

15 die, and

5 survive.

The believer in the protective doctrine explains these results in the following manner:—The 20 who survived both epidemics survived the second, because of the beneficial or protective influence of the "disease" poison imbibed in the first attack. The 15 who died out of the second 20 did so because they had not previously received the smallpox poison, and consequently did not possess its protective influence. It will be observed that this explanation fails to say how the smallpox poison, which was destructive even unto death in the 80, became beneficent and protective in the 20. The non-believer—or rationalist, as I prefer to call him—explains the same facts in the following way:—"Health" and "disease" are "opposite" influences in the same human body, and their effects upon each other are those of exhaustion and destruction. Mr. Simon thus describes the influence of smallpox:—"The extreme degree in which natural smallpox weakens and exhausts those whom it refrains from killing."² I accept this as faithfully representing also the influence of the health-

¹ *Report*, 1871, p. iii.

² *Report*, p. 381.

power. Substitute the proper terms, and it may be with equal truth said, "The extreme degree in which the natural health-power weakens and exhausts the germ disease, it refrains from killing." When a person has imbibed the smallpox poison, a contest begins between the health-power and the animal poison. In the 80 who die the disease is the most powerful. In the 20 who survive "health" is the stronger. This same 20 will, *à priori*, pass safely through a second attack, because, having once asserted the superiority of their health-power over that of the disease, they can do it again. The disease-power retains its destructive character throughout.

The objection to inoculation was twofold. The protective idea was called in question, but only faintly; the disease-agent was condemned as "unsafe." This last objection was the more prominent. But the unsafe character was *chiefly* limited to the danger of transmitting smallpox by each inoculated person becoming a focus of contagion. Inoculation was ultimately condemned, not through its "protective" quality being doubted, but solely through its unsafe influence in being a cause of smallpox. The condemnation of the practice in a clause of an Act of Parliament at the present time is solely aimed at this dangerous tendency. Its protective virtues were never called in question by those who deemed the practice inexpedient because unsafe. Vaccination inherited the *protective* claims of inoculation, and according to its promoters was entirely innocent of the *dangerous* qualities of its predecessor. At this point we meet with the first mystery, thanks to Mr. Simon's writings, which seems to excite feelings of wonder and awe in the believer in vaccination. The vaccine disease is human smallpox modified by having been passed by artificial inoculation through the skin texture of the cow. We have *no* evidence of the cow imbibing the human smallpox effluvia in the same way as smallpox is spread amongst human beings by the poisoned atmosphere in the immediate neighbourhood of a smallpox patient.¹ The positive fact before us is, that

¹ The instances mentioned by Dr. Seaton are *not* sufficiently definite to be compared to effluvia emanating from the breath.

the cow-pox can be produced in the cow by the artificial inoculation of human smallpox. Mr. Simon and Dr. Seaton thus write of a mystery :—"To the present time (1857) it remains one of the most interesting and *least-explained facts* in pathology that the specific contagion or ferment of smallpox, so uncontrollable in its operations when it enters a man in the ordinary way of his breathing an infected atmosphere, becomes for the most part *disarmed* of its virulence when it is artificially introduced to the system through a puncture of the skin ; so that a person exposed to this artificial infection very generally contracts the disease in its mildest and most tractable form." And Dr. Seaton applies this "mysterious" idea to the vaccine lymph. "Equally *strange* and *inexplicable* is the further and greater change which this ferment undergoes in passing through the textures of a cow¹—a change which renders it incapable, when transplanted to the human system, of any longer propagating itself by effluvium, whilst it retains its capability of propagation by inoculation, and its power of protecting the system against its own further action thereon." The same kind of mystery is again met with when "humanised" lymph, after long usage, is supposed to have lost some of its protective power, this defect being one of the reasons given for smallpox not having been diminishing to as great extent as it "ought" to have been, and suggesting that a fresh supply from the original source—the cow—should be used. Hence one cause of the animal vaccination movement. The mystery is also met with again in the lymph of the vesicle on the re-vaccinated person being "powerless" for vaccination. The operator is warned that lymph from a re-vaccinated person must not be used either in vaccination or re-vaccination.

To the non-believer, or Rationalist, there is no mystery whatever in any of these cases. The different effects following the absorption of smallpox effluvia by the lungs and the artificial inoculation of the smallpox and vaccine lymphs in the texture of the skin, whether of cow or human being, can be explained by the difference in the two structures into or through which the

¹ I ask the reader to bear in mind this expression.

poison enters. There is an enormous difference between the *delicate and almost structureless membrane* of the air cell of the lung, through which the atmospheric air—either in a state of purity or fouled by disease effluvia—passes *without interference, directly* into the blood attacking that fluid, in each inspiration, at tens of thousands of points, as many in fact as there are air cells, and the *comparatively thick and complex skin* into which (and not beneath) the living disease is artificially inserted by a cut hardly passing through more than the outer part, the cuticle. The delicate membrane of the air cell has *no structural capacity to interfere* with the constitution of the atmosphere breathed. Whatever virulence the germ poison has in the air, it possesses it when admitted into the blood; and, as it is admitted, not at one point, but at tens of thousands, the whole blood system is in a few minutes charged with the poison in its natural vigour. Hence the active disease affecting the whole body.

But the minute portion of disease inserted into the skin, has to come at once into relation with that specific power which this highly organised structure possesses of localising any special activity, and of contesting within a limited area, against the destructive and degrading influence of the germ poison artificially inserted. The poison is not permitted to pass directly into the blood. The germ disease has to live its own form of life in an area of very limited and distinctly circumscribed dimensions; and it is only when the inflammatory redness of the areola (which *need not be*) appears, that the constitution generally can begin to be affected. If, instead of one vesicle, a number equal in area to the pustules that characterise an ordinary case of smallpox were put in, the constitutional symptoms would be proportionately increased. But constitutional symptoms arising from this areola are not specific. Mr. Simon writes:—"It is only during a *part of the course* of a vaccine vesicle that its lymph is suitable for further vaccinations, for *after* a given moment, at which the contents of the vesicle possess their maximum of simple contagiousness, they tend more and more towards the *quality of common inflammatory products*; and matter

now taken from the vesicle is no longer the simple agent of a specific infection, but both has less efficiency for its real purpose, and is *specially able to produce other undesired results.*¹ Hence the two conditions—the enormous absorption surface of a interfering membrane in the air cell—and the specific power of the skin to localise a contest with disease, are sufficient reasons to account for the different degrees of virulence attending these two modes of disease propagation, whether it be the case of smallpox inoculation or vaccination. The other mysterious instances of the diminished specific *power* of the inoculated smallpox, either in man or in the cow, the weakening influence upon vaccine lymph of a continuous series of insertions in the human subject, and the positive destruction of all specific quality, when taken from the revaccinated person, are one and all explained by the same kind of contest as that which takes place between health and disease in a natural attack of smallpox. In artificial inoculations the contest is limited to the place of insertion. The specific health power of the skin contends against the limited portion of disease inserted. With each inoculation the health power robs the “disease” of a portion of its specific *virtue*, until coming to the skin of the adult, in which the general power of the body is more differentiated into the specific powers of its individual structures, it loses the last vestige of its specific character. And the reason why infants can be made the “seed-beds” of young disease “plants,” with greater certainty (than adults) of producing a *continuous crop* of the same kind, is that the *germinal life power* of the body has *not been distributed* to the same extent amongst the individual tissues.

But the protective theory has another mystery, differing from that I have mentioned. The mystery just dealt with is the *inexplicable* nature of a fact. The mystery I have now to deal with is a *pure invention*, and has no existence. *How* does disease protect the body? The believer says, By extinguishing a specific susceptibility to that specific disease. I will give this dogma in Mr. Simon's own words:—“Susceptibility to smallpox

¹ *Report*, 384.

is a very definite state of body ; equally definite and distinct are the susceptibilities to other specific diseases ; and it has never been pretended that man becomes less susceptible of one because he is less susceptible of the others. Vaccination is directed against the one susceptibility only ; and a child whose liability to smallpox has just been extinguished by well-performed vaccination may, to-morrow, like an unvaccinated child, *be run over, or be drowned, or sicken of measles, or suffer with teething, or be struck with any other of the numberless shafts of death.*" If there be a definite and distinct susceptibility to every one of the influences mentioned by Mr. Simon, from that "of being run over" to the last of the numberless shafts of death, and if one susceptibility can be removed without disturbing or touching any of the others, where, I ask, are they packed together in one small specimen of humanity ? And if it be true of every one of these susceptibilities, what is said to be true of the removal of the smallpox susceptibility, that the body is all the better for its removal, what part of the body would be left behind if all these susceptibilities were taken away ? This specific susceptibility dogma is a pure invention. It is necessary to the "protective" theory. When a distinct entity, like the vaccine disease, is said to "protect" the healthy body against a disease which may be a few years off, it is necessary, as it cannot protect the body by fighting the disease itself, to invent some work for it to do. Hence "a definite and distinct specific susceptibility" is invented. Neither Mr. Simon nor Mr. Ernest Hart has ventured to attempt to describe it in terms and under conditions that would enable the man of research to seek for it. Can Klein describe it ? Can Noble depict it ? Mr. Simon speaks of it as a "specific change in the system,"¹ of its "redevelopment." He makes use of it to explain away a series of facts which "ought not to have happened, namely, that nearly a third of a large number of well-vaccinated soldiers (14,000), who were tested by revaccination to see if the primary vaccination really "protected" according to theoretical teachings, "gave again exactly such local phenomena as arise in

¹ *Report*, 369.

children when vaccinated for the first time." How does Mr. Simon get over this difficulty? The specific susceptibility comes to his aid. "Inoculation of lymph (whether vaccine or variolous) is, so to speak, a *finer and more delicate test of susceptibility to the smallpox poison than is the breathing of an infected atmosphere*; so that many persons, when the lymph of cow-pox or smallpox is inserted in their skin, will give, locally at least, evidence of susceptibility, which no atmospheric infection would have elicited from them." This occurs on p. 369. Mr. Simon must have forgotten what he had previously written on p. 346—"The specific contagion or ferment of smallpox, so uncontrollable in its operations, when it enters a man in the ordinary way of his breathing an infected atmosphere, becomes for the most part disarmed of its virulence when it is artificially introduced to the system through a puncture of the skin." When Mr. Simon is led to contradict himself in this manner it is not to be wondered at that "smallpox after vaccination has been a disappointment both to the public and the medical profession."¹ A practice based upon a superstition—that gives disease the power to protect health—and supported by the "specific susceptibility invention," is bound to disappoint the real searcher after truth. The non-believer or rationalist does not require "specific susceptibilities" to account for the manifestations of specific diseases in the human body. Two conditions are needed, the poison disease outside and unfavorable conditions to health outside and within the body. The strong common sense of Dr. Druitt may be here fitly quoted:—"It is just as reasonable to say that umbrellas prevent thunderstorms as that vaccination can prevent a smallpox epidemic." "He heard, in the profession, that never have revaccinations succeeded as now. This shows that through some latent changes the populace have been more liable to the bane and the antidote alike. Epidemics of smallpox will recur from time to time, and the cry of the newspapers ascribing the origin to neglect of vaccination is ridiculous and mischievous. We read, sometimes, Brussels is free from smallpox, whilst Paris is decimated, a

¹ *Report*, 370.

striking instance of the value of vaccination! Next week we regret that smallpox has been introduced into Brussels and spreads. The same is said of Ireland. But we may ask, where is the boasted power of vaccination if it does not defend from imported disease? The fact is *smallpox exists without us*; we may hope for its extinction when poverty, filth, sordid homes, and sordid clothes-tramps and beggars shall be extinguished.”¹

One of the most serious effects of the “belief” in vaccination has been to produce in the official mind an *indifference* to the important influence of sanitary measures in destroying those conditions which tend, on the one hand, to cultivate the germ poisons of animal disease, and, on the other, to debilitate the human constitution. The former conditions are especially described by Mr. Simon as “a vast destructive laboratory of nature, wherein the diseases which are most fatal to animal life, and the changes to which dead organic matter is passively liable, appear bound together by what must at least be called “a very close analogy of causation.”² The extent to which official prejudice can blind the professional mind is seen in the following quotation from a ‘Report on Smallpox,’ by Dr. Seaton (1875). Mr. Hart quotes this statement in his pamphlet as the latest outcome of modern sanitary science:—“If I have not adverted to any influence which general sanitary conditions may have exercised on the smallpox mortality at home or abroad it has been because the amount of any such influence is known to be *wholly insignificant* as compared with that of the presence or absence of effective vaccination.”³ For a reproof of this unreasoning prejudice I turn to page 116 of the same ‘Report,’ and find the following remarks by Dr. Buchanan:—“This difference in the amount of hospital provision and in the classes that made use of it must certainly be taken into account in estimating the reasons for the observed prolongation of the epidemic in Birmingham, as compared with London, Coventry, and other places that might be mentioned . . .

¹ *Medical Times and Gazette*, February, 1871.

² *Report to Privy Council*, No. iii, 1874.

³ Page 84.

One of the best differential experiences of the kind now in question is recorded by my colleague, Dr. Bloxall. It is the case of an epidemic of smallpox in 1871, *prolonged in Plymouth*, but *quickly extinguished* in adjacent Devonport. The two places form almost one town, and *no difference* between the two, except the different rapidity and copiousness of hospital provision, could be detected." The state of perfection to which the methods of ventilation and disinfection have attained, and their influence in controlling the presence of disease-germs in the atmosphere of rooms, is thus referred to by the editor of the 'Lancet,' January 24th, 1880:—

"The experiments (for the detection of Bacteria) conducted on the air in the typhus ward of Menzel's Hospital were all without result (showing the absence of the Bacteria); neither the mineral solution nor the organic infusions exhibited the slightest turbidity. This M. Miflet attributes to the *thorough ventilation* adopted in the wards, and the *perfection of the methods of disinfection now in use*. . . . As it has been said that, notwithstanding the accidents recorded in the daily papers, a seat in a first-class railway carriage is the safest place in the world, so it may prove, if Bacteria are really the insidious fiends they are represented to be, that residence in a typhus-fever ward will secure immunity from disease."

It is to be regretted that Mr. Ernest Hart, the chairman of the National Health Society's Council, and the factotum of the British Medical Association, should, by quoting with approval Dr. Seaton's discouragement of sanitary measures in controlling smallpox, have connected these two important Associations with opinions so unscientific and narrow-minded.

As to the "safety" of vaccination, as a practice enforced by penal enactment upon every healthy child in the kingdom, I shall be able, from Mr. Hart's and Mr. Simon's own writings, to show that (apart from the question how far the taint of smallpox in vaccine lymph may or may not tend, however mildly, to induce smallpox in the community) the continuous inoculation of animal disease is an unscientific and dangerous proceeding. Mr. Hart,

in his pamphlet, page 20, makes the following admission, being compelled thereto by the facts in Mr. Hopwood's 'Return,' May, 1877, No. 433:—"It is beyond dispute that the recorded mortality from *tubes mesenterica*, *diarrhœa*, *bronchitis*, *crysipelas*, *pyæmia*, *skin diseases* and *syphilis*, has increased in recent years." To appreciate the terrible meaning of this admission in connection with compulsory vaccination it is necessary to compare the opinions of Mr. Simon, the chief Government authority, when vaccination was made compulsory, with his opinions now.

Mr. Simon wrote as follows, in his 'Papers,' 1857:¹—"I may inform you that the diseases which it has been suspected that vaccination might communicate have chiefly been *scrofulous* and *syphilitic* complaints and *various eruptions of the skin*. In all but a very limited number of these cases it may be conclusively answered that the suspected mischief is *physically impossible*. Scrofula, for instance, and most skin diseases, even when for experiment their specific discharges and other products are deliberately inoculated in the healthy, are absolutely uncommunicable by contagion; and it is inconceivable that the vaccine lymph, even if it could include these products, would alter the essential condition of their nature. Of some others among the diseases referred to it may no doubt be admitted that certain of their specific products are infectious; but then, again, comes the question (which is already by anticipation almost disposed of) whether the constitutional existence of such diseases can qualify the contents *without modifying the characteristic development* of a true Jennerian vesicle. Experiment, where it has been deliberately addressed to the solution of this question, has invariably answered *No*, and such experiments are worth more than many arguments."

Upon such decisive authority the inoculation of a living element of animal disease has been carried on from child to child until the present moment. According to Mr. Hopwood's Return, the diseases mentioned by Mr. Simon, are those from which the mortality has increased in recent years. Is it possible

to connect this increase with the practice of vaccination? I now quote from Mr. Simon's later writings. And first, as to the possibility of the simplest kind of "disease matter" being able to induce blood poisoning and scrofula.

In report No. 2, 1874, page 16, Mr. Simon writes:—"I would particularly wish to connect with that subject a reference to our *growing* scientific knowledge in the matter of the 'common' septic ferment. The pathological studies of late years, including eminently certain very instructive researches which Professor Sanderson has conducted under my Lords of the Council, have clearly shown that in the 'common' septic ferment, or in some ferment or ferments not hitherto to be separated from it, there reside powers of disease-production as positive, though not hitherto as exactly defined, as those which reside in the variolous and syphilitic contagia. Experimentally we know of this ferment that, when it is enabled by *artificial inoculations* to act in its most effective way in the animal body, and even more when it has received a curious increment of strength which its first propagation within the living body seems to bestow on it, it shows itself one of the most tremendous of zymotic poisons. It rapidly in one animal develops disease, which then is communicable to another, &c." "And a further, perhaps still more instructive, teaching of the artificial infections is this: that the 'common' ferment, which in the stronger actions quickly destroys life by septicæmia, can in slighter actions start in the body chronic processes, which will eventuate in general tubercular disease." And, in the 'British Medical Journal' of December 13th, 1879, edited by Mr. Ernest Hart, Mr. Simon thus writes:—"Presumption against *every part and product* of the diseased body is by every one readily admitted, where there are *vehement* general symptoms of disease; but it is important to know that not only in such febrile states, but in states of *chronic dyscrasy*¹ and even at times when the dyscrasy *may be giving no outward sign*, the infected body may be variously infective. Thus, in regard to constitutional syphilis, the vaccine lymph of the

¹ "Dyscrasy," an ill habit or state of the humours.

syphilitic infant may possibly contain the syphilitic contagium in full vigour, *even at moments when the patient, who thus shows himself infective, has not on his own person any outward activity of syphilis.*" If the reader will compare the doctrine laid down in this last quotation with that taught by Mr. Simon in 1857 and as late as 1871, he will see that the *claim* of vaccination to be free from the danger of transferring constitutional defects from child to child is *denied*, not only by the latest outcome of pathological teaching, but by the stern facts in the tables of mortality.

The connection of vaccination with skin diseases and erysipelas and allied examples, from which the mortality has increased in recent years, will be readily recognised if the influence of the "common septic ferment" described by Mr. Simon, and the injurious inflammatory effects around the vaccine vesicle in a "proper" case of vaccination, be remembered by the reader. Erysipelas is specially connected with such degrading changes. And as to "skin diseases" increasing coincidently with an extensive system of vaccination, wherein a living element of animal disease is made to contest with the natural health power of the skin, possession of a certain area of that structure, *seeing* that one effect of this contest upon the skin is to *weaken* more or less its health power, and remembering that the commonest forms of "skin eruptions" are *conditions of debility*, it is not necessary for me to take up any further space, in order to strengthen the opinion that no *more certain way* of promoting in a *wholesale manner* the *ordinary skin diseases* of the human body could be *devised* than that of *transferring from child to child the "disease" contents of a skin eruption*, as is done in every case of vaccination.

The compulsory vaccination laws have been in operation for nearly twenty-eight years. What greater crime against a free people could be committed than that of poisoning, by the force of pains and penalties, the blood of every healthy child! That the *recent* opinions of Mr. Simon upon vaccination-syphilis and the modes of contagion, published in the *British Medical*

Journal, of which Mr. Ernest Hart is the editor, are not referred to in "The Truth about Vaccination," is not creditable to Mr. Hart as a controversialist.

SMALLPOX STATISTICS.

Historical Bugbears.—The first eight pages of Mr. Hart's pamphlet are historical, and are intended to leave upon the mind of the timid reader a twofold idea, that the smallpox disease is a permanent evil influence, always ready to attack every human being, and uncontrolled and uncontrollable by those physical sanitary conditions upon which communities absolutely depend to diminish and sweep away all other contagious diseases; and that no other means than vaccination prevents this permanent evil influence at the *present time*, producing effects upon every portion of the community, from the Royal household down to the humblest family, as extensive, virulent, and fatal as any of those so carefully described.

To persuade a man that he is already in a lost state, and then to show him that *you* alone possess the means of his salvation, is a very old, but also a somewhat worn-out mode of superstitious quackery. Mr. Hart suggests the permanency of the disease by speaking of smallpox "in its natural state." Is smallpox an essential part of the permanent conditions of nature? or is it produced and cultivated by *unnatural and artificial* conditions? I will add to Mr. Hart's historical paragraphs one from Mr. Simon's thoughtful essay on "Filth" ('Report,' ii, 1875):—"It has been among the oldest and most universal of medical experiences that populations living amid filth, and within direct reach of its polluting influence, succumb to various diseases which under *opposite* conditions are *comparatively or absolutely unknown*; and the broad knowledge that *filth makes disease* is amply represented in the oldest records which exist of legislature meant for

masses of mankind." With this quotation I dismiss Mr. Hart's historical compilations.

Statistics depend for their permanent value upon the entire absence from the qualities of the figures of the *personal equation* element. It is the presence of this element which has justly given rise to the contemptuous saying, "Figures can be made to prove anything." Smallpox statistics illustrate every phase between the two extremes—the entire absence of the personal equation and its continual presence. Instead of following Mr. Hart's somewhat chaotic mode of dealing with smallpox statistics, I shall limit myself to the examination of types of figures as to their claim to be trusted, and as to their meaning. I hope thereby to be able to provide the reader with tests which he may apply to any other of the many smallpox statistics that are appearing daily. The figures of most permanent value are: (1) the actual deaths from smallpox in a given period and a definite area; and (2) the actual number of cases admitted into the smallpox hospitals and divided into vaccinated and unvaccinated. The figures of doubtful value are those arranged according to the number of vaccination "marks."

The Smallpox Mortality in two Periods, 1838–53 and 1854–79, in two Areas—England and Wales and London only.—As the object of making these comparisons is to ascertain the relation (if any) which vaccination has to the results, it is necessary to give the figures representing the *extent of vaccination* in these respective areas.

According to Dr. Seaton (1875), of the men and women in

England, only	39 per cent. were unvaccinated.
And, therefore, more than	96·0 per cent. were vaccinated.
Whilst in London only, only	2·8 per cent. were unvaccinated.
And, therefore, more than	97·0 per cent. were vaccinated.

The mortality from smallpox in England and Wales in the period of—

16 years, 1838—53, was 420 per million of population, and in
 26 „ 1854—79 „ 208.5 „ „

Or a diminution of more than one half.

The mortality from smallpox in London only in the like periods—

16 years, 1838—53, was 512 per million of population, and in
 26 „ 1854—79 „ 348 „ „

Or a diminution of less than one third.

It will be observed that whilst London is more completely vaccinated than England, the decrease in smallpox mortality is greater in England than in London. And if we add to the greater *extent* of vaccination in London the more favorable conditions in London for having the *quality* ensured, in consequence of the large Government vaccination stations and the ease with which Government lymph can be obtained, the less diminution of the smallpox mortality in London, as compared with the greater diminution in England, destroys the claim of vaccination to the credit of having diminished the smallpox mortality in the last twenty-six years. Mr. Hart claims for vaccination the credit of this favorable change, solely on the ground that increased vaccination during the last twenty-six years is coincident with this decrease of mortality. Mr. Hart takes the decrease of more than one half as shown in the mortality of England and Wales, and does not give in his pamphlet the lesser decrease in better-vaccinated London for the like period. Why did he choose the more favorable figures? He says:—“For this purpose it will be *more satisfactory* to deal with the figures for the *whole of England and Wales, instead of for London only.*” Now, I demur to this excuse on two grounds:

(1) By choosing the more favorable figures, and keeping back from his readers the fact that in London, the best vaccinated portion, the *decrease* was much less than in England and Wales, he was allowing the personal equation to weaken the “basis of his statistical deduction.”

(2) To a *defender* of vaccination it was an *ugly fact* that in London, the centre of vaccination wisdom—where the “Marsons” and the “Corys” vaccinate, where the “finest” lymph can be obtained at a moment’s notice, and where a larger percentage of the people are vaccinated than in England and Wales—the mortality from smallpox should *not* have approached anywhere *near* the diminution of that in the country generally. By omitting to notice this “defect” in the London statistics, he avoided having to acknowledge that so far from diminished mortality being *coincident* with the *very best* vaccination in *extent and quality*, the “London” and “England” statistics proved the opposite state of coincidence. Guided by the health *versus* disease theory, the lesser diminution in London is easily explained. If a larger percentage of persons are having a modified form of smallpox poison inserted into them then, if that specific poison should have the tendency, either through its specific or through its common septic influence, to favour, however mildly, the promotion of smallpox, the relative positions of London and the country generally are explained. But putting aside the London figures, how does the health *versus* disease doctrine account for the more than half decrease in the smallpox mortality in the later period? Briefly the reasons are these. In the earlier period the waning influence of the accursed practice of smallpox inoculation was more or less being exerted.

Dr. Seaton’s table giving the “smallpox deaths per 1000 deaths from all causes,” in periods of ten years for 110 years, will show the steady rate at which smallpox mortality decreased co-incidentally with the gradual cessation of smallpox inoculation :

1751-60	1761-70	1771-80	1781-90	1791-1800	1801-10
Deaths 100	108	98	87	88	64
1811-20	1821-30	1831-40	1341-50	1851-60	
42	32	23	16	11	

Inoculation was, therefore, a positive cause of smallpox in the earlier period. Being made a misdemeanour, its influence in the

later years would be *nil*. This is *one* reason for the difference. Another is that during the past twenty-six years enormous strides have been taken in the many paths of sanitary progress, the removal of "rookeries," the more spacious streets, the more systematic removal of filth, the improvement in drainage in towns, the improved water supply (except in London), the readiness with which *first cases* of smallpox are taken in hand, must one and all have exercised a *positive* influence in diminishing those conditions of *filth which makes disease*.

I place these two conditions before the reader, as explaining more satisfactorily the decrease in the mortality than the claim made for the influence of vaccination.

STATISTICS OF SMALLPOX IN LONDON HOSPITALS.

The number of cases of smallpox admitted into the London Hospital, and the relative numbers of vaccinated and unvaccinated persons among them, afford important tests as to the influence of vaccination or other conditions.

According to Mr. Jebb's letter in the *Times*, November, 1879, from 1878 to October, 1879, the following number of cases were admitted into the metropolitan asylums:—15,171, of whom 11,412 were vaccinated, or 75 per cent., and 3759 unvaccinated. The total mortality was 17·6 per cent. The mortality among the vaccinated 8·8 per cent. and unvaccinated 44·4 per cent.¹ What does the *total* number of cases of smallpox tell us as to the *protective* power of vaccination? According to Mr. Jebb, "for each case treated in the Board's hospitals another was *privately* attended. Hence some idea may be formed of the

¹ I wish the reader to observe that *all* the authorities whose opinions I have quoted in these pages are firm believers in vaccination. Hence, if they are prejudiced, they are prejudiced in *favour* of vaccination.

magnitude of the epidemic." Is this amount of smallpox satisfactory to the believer in vaccination? According to Dr. Scaton, 97 per cent. of the London population is vaccinated. And as to the "quality" of vaccination, Dr. Stevens said, in December, 1879:—"All his experience led him to the opinion that the arm-to-arm system practised in this country was as nearly perfect as a system could be made, and as efficacious as could be desired." Is the result of this "extent" and "quality" what the believer in disease protection expects? I will let Dr. Cameron, M.P., and Dr. Ransome, Professor of Public Medicine and Hygiene at Owens College, give the answer. Dr. Cameron says:—"The recurrence, therefore, in the latest period of a mortality almost as high as that experienced prior to the Vaccination Act shows that the protective virtues of vaccination are *mythical*, or that there is something radically wrong in our national system of vaccination" (December, 1879). Dr. Ransome says:—"The epidemic of 1871-2, gave distinct evidence of the inefficiency of vaccination as it had been practised in England of late. Not only did it kill 40,000 persons, as many, in fact, as in an epidemic before the introduction of vaccination, but it also assumed all the characteristics of an epidemic unmodified by vaccination" (December, 1879). From these facts and opinions the reader is justified in saying that vaccination is not "protecting" the country against smallpox.

The proportion of vaccinated persons among the smallpox cases.—The extent to which vaccination *theoretically* protects against smallpox is dogmatically laid down by Sir William Gull ('Report,' 1871). "Vaccination is as protective against smallpox as smallpox itself." This dogma was formally sanctioned by the Parliamentary Committee (p. 3). The statistics from the smallpox hospitals provide us with facts by which this dogma may be tested. Mr. Marson, who was for thirty-five years resident surgeon of the Smallpox Hospital, Highgate, said ('Report,' 1871, 4220) in answer to the question:—"Do you consider that smallpox itself is as great a protection as vaccination?" "Yes, much greater, as you see by the returns. There are a *few* cases of

persons who have had smallpox, *after* smallpox; and in the first table which I gave the number was less than 1 per cent. of smallpox after smallpox; whereas it was 53 per cent. of smallpox *after* vaccination." This seems to have been the average for a series of years. In answer to another question, he said:—"When I first went to the hospital thirty years since, from 1835 to 1845, the admission of patients was 44 per cent. of smallpox cases *after* vaccination, from 1845 to 1855, 64 per cent., and from 1855 to 1865, 78 per cent., and during 1863-64, 83 and 84 per cent." The statistics already given from Mr. Jebb's letter of 1878 to 1879 give in 15,141 cases admitted no less than 11,142 of smallpox *after* vaccination, or 75 per cent. These figures demonstrate the utter falsity of Sir W. Gull's dogma, that "vaccination is as protective against smallpox as smallpox itself," whilst the occurrence of 75 per cent. of smallpox cases following vaccination, *after twenty-six years of compulsory vaccination*, when in the twenty years *preceding* 1853 the percentage was not more than 53 per cent., shows that vaccination has been doing nothing towards bringing the vaccinated people *nearer to the 1 per cent.* of smallpox cases after smallpox. Judged by the dogma theory, these results are *inexplicable and mysterious*. But tested by the health *versus* disease doctrine their meaning is clear. The contest between the health power and the smallpox disease is a definite test of the respective strengths of these two forces. But the contest between the health power of the whole body and the limited amount of vaccine disease action in vesicle area affords *no* test of the relative strengths of the health power and the power of the smallpox disease when admitted into the body through the lungs by effluvia. Mr. Hart said, in *Brit. Med. Journal*, Oct. 13th, 1877:—"Vaccination as at present performed is not preventive of smallpox." Although vaccination has no power to "protect" against smallpox, why is it that vaccinated persons have a *greater tendency* in later than in former years to be possessed, for a time, by the smallpox disease, *greater* in the proportion of 75 to 53? Mr. Hart said, Oct. 13th, 1877:—"It is forgotten by some, and unknown to others, that

for vaccination to be successful one ought to *produce an illness*, and that this very illness is the first evidence of the success of the operation. In addition to the fact that people are *ill* after vaccination it is important to bear in mind that people *die* after the operation, if not from the disease itself at least from its "sequelæ, notably erysipelas." What is this illness? The *depression* occasioned by the "common septic¹ inflammation" which attends every complete vaccine vesicle. No kind of disease influence is, in its more extensive phases, so rapid and so debilitating in its effects. The reader will bear in mind that whilst, according to the rational theory of health *versus* disease, the *specific* quality of vaccine or smallpox virus (in artificial inoculation) is by each successive insertion robbed of a portion of its power, the "common septic" power is not only not diminished, but, in accordance with Professor Burdon Sanderson's experiments, previously referred to, tends to increase. But whilst I have thus shown that the increase from 53 to 75 per cent. of smallpox after vaccination is owing to vaccination as an operation having a tendency to increase smallpox, I wish the reader to understand that I do not look upon *this* tendency as constituting the most serious of the unsafe conditions inseparably connected with vaccination. The promotion of the other diseases referred to in former pages is the influence which condemns vaccination as an *unsafe* remedy.

Smallpox mortality among the vaccinated and unvaccinated.—Whilst as many as 75 per cent. of the smallpox cases (11,412 in 15,171) had been vaccinated, and 24 per cent. (3759 in 15,171) had not been vaccinated, the percentage mortality of the vaccinated was only 8·8 per cent., and that of the unvaccinated 44·4.

"Behold," triumphantly exclaims the believer, "the protective influence of vaccination!" Two facts may be coincident, and not have the relation of cause and effect.

The Government instructions to the public vaccinators, which divide the population at the present time into two sections, vaccinated and unvaccinated, provide other reasons than the influence

¹ "Septic," means blood *poisoning*.

of vaccination for the greater mortality from the smallpox disease among the unvaccinated. These instructions are as follows:—
“Except so far as any immediate danger of smallpox may require, *vaccinate only subjects who are in good health. As regards infants ascertain that there is not any febrile state, nor any irritation of the bowels, nor any unhealthy state of the skin, especially no chafing or eczema behind the ears, or in the groin, or elsewhere in folds of the skin*” (Mr. Hart’s pamphlet, p. 65).

Hence vaccination *positively* divides the population into the *strong and perfectly healthy*, and into the *weakly and ailing*—those *unfit even to undergo safely the minor operation of vaccination*. In addition to these sickly members the non-vaccinated will contain that portion of society described by Dr. Stevens (December, 1879) as “the irregular classes—the street Arabs and the importations of Irish emigrants.” If these two sections of the community, the *strong and healthy*, on the one hand, and the *weakly and ailing* and the *neglected and “lost” street Arabs*, on the other, are exposed under their *several conditions of life* to the same smallpox poison, upon which portion should its fatal influence produce the greatest effects? To state the case is practically to answer the question. Instead of being surprised that 44·4 per cent. of the unhealthy and neglected portions of humanity die, whilst only 8·8 per cent. of the strong and healthy, carefully selected from the earliest months of existence, succumb, the the marvel is that, in the presence of so contagious and powerful a disease-poison, the *whole* of this sickly and “lost” portion of humanity is not swept away. And the same argument explains the difference between the number of vaccinated in the *whole* population (97 per cent.) and the number of vaccinated amongst the smallpox cases (75 per cent).

The conditions of health and strength which places one portion of the community amongst the vaccinated are also the conditions which *withstand* smallpox, whilst the conditions of weakness and wretchedness which determine the unvaccinated are also the conditions which favour, externally and internally, the onslaught of the disease. I conclude this section with Mr. Simon’s opinion :

—"But let it be considered, with particular reference to that child who so shows a special liability to be upset by vaccination, what an *infinitely greater upset smallpox would be*. If the minimised disturbance, if the *minimised smallpox, which vaccination is*, produces this temporary derangement of health, *what would not natural smallpox do to the child?*" (3098).

Smallpox mortality in the vaccinated, arranged according to the number and quality of "marks."—As a type of this set of figures, I give the following from Mr. Marson's statistics:

Cases of Smallpox.	No. of Deaths per cent.
Vaccinated, but no cicatrix . . .	21 $\frac{3}{4}$
" one " . . .	7 $\frac{1}{2}$ well marked . 4 $\frac{1}{4}$, badly 12
" two cicatrices . . .	4 $\frac{1}{8}$ " 2 $\frac{3}{4}$ " 7 $\frac{1}{4}$
" three " . . .	1 $\frac{3}{4}$
" four or more cicatrices	$\frac{3}{4}$
Unvaccinated	35 $\frac{1}{2}$

The "mark" figures, whereby it is intended to show that the protective influence is in direct proportion to the number and quality of the marks upon the individual are dependent to such a degree upon the personal equation of the collector as to render them utterly useless in standard statistics. The extent to which Mr. Marson (whose mark figures are almost the only sets upon which the believer relies for this kind of evidence) is shown by an observation he made in his evidence.

Question.—"Would you know your own ease by the appearance of the arm?" *Answer.*—"Yes; most workmen know their own work." The first objection to the "mark," as a test of protection, is that the conditions necessary to the successful vesicle, of which the mark is but the remains, can only be observed during vaccination. The areola, or the common septic inflammation, which is said to be necessary, both to the protective influence of the operation and to the lymph taken from a vesicle, can only be observed during the life of the vesicle; so that in examining a mark the observer is neither able to say whether the necessary septic inflammation was present at the time of vaccination nor

whether the lymph was obtained from a protective vesicle. Hence the mere presence of a mark is not a positive proof of the essential conditions which belonged to the vesicle. The smaller number of marks might represent protective and the larger number non-protective vesicles. But if all the essential conditions of a successful vaccination were stereotyped in the mark the many indefinite qualities which may characterise the cicatrix render the individual opinion of them of no value. Mr. Marson says:—

“A good vaccine cicatrix may be described as *distinct, foveated dotted, or indented, in some instances radiated, and having a well or tolerably well-defined edge.*” “An indifferent cicatrix is *indistinct, smooth, without indentation, and with an irregular or ill-defined edge.*” Every one of these adjectives represents an idea, the quality of which depends upon the personal equation of the collector. The fact that Mr. Marson knows his own vaccination by the “marks” years afterwards means that what he terms a good and efficient mark differs from the views of every other vaccinator. The use of indefinite terms, such as good, efficient, successful, enables the protective theorist to shirk many unpleasant facts. Take a remark from Mr. Jebb’s letter, in which the hospital statistics I have quoted are contained. He says:—“No case of smallpox has come within the cognisance of either of the medical superintendents of any person who had been *efficiently vaccinated and successfully revaccinated.*” Let the reader try to imagine the amount of the “Personal Equation” necessary to determine the qualities of two different sets of marks, made at two periods of life—separated by years—and on a person suffering from smallpox, and he will realise how indefinite such statements are as a basis of standard statistics. It is admitted by eminent physicians that good marks may disappear in a few years, and everybody knows the marks of smallpox are dependent upon the accident of exposure. I, therefore, place no value, as a test of “protection” either for or against, upon the number and quality of marks said to have been met with by particular observers when used as a basis of

evidence. The uncertain nature of Mr. Marson's "mark" evidence is seen when we read the following words in Dr. Bridge's recent 'Report on the Smallpox Asylums,' and just presented to the Local Government Board:—"In estimating the degree of vaccination the *first* rule to be observed is that quality takes precedence of quantity. *One* well-pitted mark affords more protection than a *large* number of indistinct ones." But why do the official vaccinators stop at *four* marks? If the protective power is increased in proportion to the number why not act logically, like the Germans, who put in twenty, or the Swedes and Norwegians (who are, according to Mr. Marson, the best vaccinators), who put on *seven* good marks? The reason why more are not put on is the increased danger from the common septic inflammation. If vaccine vesicles were "put on" to the extent of a tenth part in area of the smallpox eruption, an amount of constitutional disturbance would ensue, that would inevitably endanger the life of the patient from the common septic inflammation. But is the smallpox disease, from which the *well* vaccinated person suffers—although of the mildest type—of *less danger* to society than the virulent disease which the non-vaccinated person is said to be sure to experience? Mr. Marson said:—"The more punctures the better, I should say. The Germans vaccinate in many places. I had two Germans in the hospital at the same time; *one* had *eleven good marks*, the other had *seventeen good marks*." "They had smallpox in the lightest form possible." And then notice Mr. Marson's answer to the next question:—"Can a patient catch this *very bad form* of smallpox from another patient who has the *mild* form?" *Answer*.—"Yes, that is unfortunately the case." I ask the reader to note these answers of Mr. Marson. If the protection is in proportion to the *good* marks, if *four* be the number sufficient in London, and if eleven and seventeen good marks still allow the smallpox to afflict such well-marked persons, where is the protective virtue of numbers? Notice also that the eleven and seventeen were, in Mr. Marson's opinion, *good* marks, and then let it be observed that after eleven and seventeen good marks,

the smallpox, although of the *lightest form* possible, is able to infect another person with a *very bad form* of the disease! And when the reader has fully realised the nice discrimination that enables an observer to say that two marks of one kind gives a mortality of $2\frac{3}{4}$, and two marks of another quality a mortality of $7\frac{1}{4}$, let him read the following confession from Mr. Marson:—
“There is some *peculiarity* (in the patient) which medical men cannot *exactly find out*. We cannot tell why one has smallpox severely and another mildly, *even among the unvaccinated*.” If the number of marks tests the severity in the vaccinated, how are we to test the varying degrees of severity in the non-vaccinated? Is there not a *cause* common to vaccinated and non-vaccinated, namely, the relative strengths of the two forces—the health power and the disease poison? and do they not vary in each individual? But there is one distinction between *good and bad* marks of interest to the health *versus* disease theorist. The good mark is said to be *well-defined*, the bad mark ill-defined. The well-defined mark means that the specific health power of the skin kept the vaccine disease well within a given area. The ill-defined mark means that the disease overcame the health power of the skin, and diffused itself to a greater extent than in the good vesicle. According to Mr. Marson, the good mark is associated with the milder form of smallpox and the lesser mortality, and the ill-defined with the severer smallpox and the greater mortality. On the health *versus* disease theory these are the results that ought to be. The good mark represents good health power, the bad mark the *feeble*. Hence the mild form of smallpox in the former and the severer in the latter.

CONCLUDING SUGGESTIONS.

That the compulsory Acts of Parliament should be repealed.

That the clause respecting smallpox inoculation be repealed, leaving the common law to protect the community against the injuries done by blood-poisoning remedies.

And that for the prevention of smallpox the Government should use its official power to carry out the urgent advice of Mr. Simon ('Report,' ii, 1874, page 41):—"And as regards that deplorable facility with which dangerous contagions of disease are allowed so generally to diffuse themselves in this country—often, no doubt, by co-operation of filth, but also often independently of it—I would finally urge, as of interest to all districts, that side by side with such endeavours for strict cleanliness as it has been the object of my preceding observations to recommend, the utmost vigilance should likewise everywhere be used with regard to *all first cases of infectious disease*, and everything be done which the state of the law permits to prevent the scattering of the seeds of contagion."
